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ABSTRACT

These National Athletic Trainers' Association (NATA) newsletters contain information on injuries sustained by girls who participate in high school basketball. Types of injuries are listed with a breakdown of injuries during games and practice, and of the parts of the body affected. A fact sheet is included outlining the qualifications and responsibilities of NATA-certified athletic trainers. Data on types of injuries are presented on a pie-chart. (JD)

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National Athletic Trainers' Association, Inc.

# 1986 GIRLS' HIGH SCHOOL BASKETBALL INJURY STUDY

SP 029 940

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**STUDY SHOWS 23% OF GIRLS WHO PLAY PREP BASKETBALL INJURED THIS YEAR**

(Columbus, Ohio, June 15, 1987)--Twenty-three percent of more than 400,000 girls who played high school basketball this year were sidelined by injury at least once, according to results of a study announced today by the National Athletic Trainers' Association (NATA).

The first nationwide survey of injuries among girls who play high school basketball found that almost twice as many injuries occurred in practice as during a game. Noting the same result from its study of high school football injuries announced in February, the NATA called for a health care plan to cover athletic programs in all U.S. high schools.

Time-loss injuries, those that require a player to suspend activity for at least one day, were recorded by certified athletic trainers at 95 high schools across the U.S. Weekly reports were fed to the National High School Injury Registry, which is directed by San Diego State University's John Powell, Ph.D. Powell also supervises the National Football League Injury Surveillance program.

Based on projections from a sample of 1,872 girls participating in high school basketball during the 1986-87 season, 101,164 of 441,441 players were injured at least one

-more-

time. The injury toll was 126,444 when multiple injuries were included. Female basketball players comprise eight percent of 5.8 million interscholastic sports participants in the nation, the NATA said.

By comparison, the earlier study revealed 37 percent of one million high school football players in the U.S. were sidelined at least one time. The NATA projected 636,000 injuries among prep football players.

Football and basketball produce the most injuries in boys and girls sports, respectively, the NATA said. Upon review of both surveys, described as "the first in-depth nationwide studies of high school injuries ever conducted," NATA officials estimate high school athletes sustain one million injuries annually.

The purpose of the studies, according to NATA executive director Otho Davis, is to measure the number and severity of injuries among prep athletes.

"By clearly identifying the risks of injury," Davis said, "we can help school administrators and parents of student athletes learn how to prevent some and properly manage the others."

The majority of injuries among girls basketball players were not serious, according to the study. Seventy-four percent were classified as minor injuries, such as contusions and ankle sprains, that required less than seven days to heal. Only 10 percent of all injuries precluded basketball participation for three weeks or more.

"Parents of high school athletes should be aware that their children suffer the same types and about the same

frequency of injuries as college and professional athletes," said Robert Hamilton, M.D., team physician at DePaul University in Chicago.

Medical records for 9,598 games and practices were used to complete the study. They revealed that 57 percent of all injuries were sprains and strains and 18 percent were contusions and lacerations.

Ankle and foot injuries accounted for 30 percent of the injuries, followed by knee injuries (17 percent); forearm, wrist and hand (15 percent), then hip and thigh injuries (12 percent).

The NATA projected from the study 4,416 sport-related surgeries nationwide, or about one surgery per 100 prep girls who play basketball. There were no catastrophic or fatal injuries reported, either in the NATA study or by researchers who record that data for all schools in the country.

According to the NATA, the ratio of athletic trainers to college and professional players is one-to-25. Conversely, there is one certified trainer for every 5,000 interscholastic athletes.

NATA-certified athletic trainers are required to have a four-year college degree and demonstrate practical experience in the areas of injury prevention, management and rehabilitation of sports injuries.

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FACT SHEET

I. U.S. Population of Girls Playing High School Basketball.

- There are 19,067 girls basketball programs in U.S. high schools.
- There are 441,441 girls participating on high school basketball programs, or an average of 23 varsity, junior varsity and sub-junior varsity participants per school.
- There are 266,938 **varsity** basketball players in U.S. high schools, based on average number of players per team (14) recorded in the National High School Injury Reporting (NHSIR) system, and 174,503 junior and sub-junior varsity players.

II. About the National High School Injury Registry

- Funding for the NHSIR system was approved by the National Athletic Trainers' Association (NATA) in June, 1985, to measure the rate and severity of "**time-loss injuries**" in high school girls' basketball. "By more clearly identifying the problem," NATA officials say, "we can help enhance the safety and well-being of interscholastic athletes."

Definition: **Time-loss injuries are defined in the NHSIR system as those that require the player to suspend activity for at least the remainder of the day the injury occurred, or the day after onset of injury.**

- The NHSIR system is the first nationwide study of high school sports injuries since 1976, when the Department of Health, Education and Welfare tabulated results from a one-page "instant recall" survey. NATA officials describe the NHSIR survey as "the first truly in-depth nationwide study of high school injuries ever conducted."
- NATA-certified athletic trainers at 95 high schools monitored 1,872 girls participating in high school basketball in 1986-87 to complete the NHSIR study. The study was headed by a research team at San Diego State University under the direction of John Powell, Ph.D, with assistance from William Edwards, Ph.D. Dr. Powell is chairman of the NATA Research and Injury Committee. He also supervises the National Football League Injury Surveillance program.

- There were 1,330 varsity players (an average of 14 per school) and 542 junior and sub-junior varsity players monitored in the survey of injuries among high school girls basketball players in 1986-87.

## III. Sport-related Injuries Among High School Girls' Basketball Players in 1986-87

- Of the 1,872 players who were monitored in the study, 429 (23 percent) were injured at least one time.
- The total number of sport-related injuries among those monitored in the NHSIR study was 630. This total reflects first-time and multiple injuries to players.
- Based on projections of NHSIR system results, a total of 126,444 time-loss injuries occurred among the population of 441,441 girls participating in high school basketball in 1986-87.
- There was an average of 6.63 basketball-related time-loss injuries per high school among girls in 1986-87.
- There were no catastrophic (paralyzing) or fatal injuries directly related to basketball among the 1,872 players monitored in the 1986-87 study. Catastrophic injuries or fatalities are extremely rare in girls basketball.4

## IV. Practice Injuries vs. Game Injuries

- 63 percent of all injuries were sustained during practice. Only 37 percent were suffered in games.

Using projections to U.S. population of girls playing high school basketball, a breakdown of injuries in games and practices follows:

| | In Games | In Practice | Total |
|---|---|---|---|
| Minor Injuries | 33,919 | 59,007 | 92,926 |
| Moderate Injuries | 7,827 | 13,046 | 20,873 |
| Major Injuries | 5,620 | 7,025 | 12,645 |
| Totals | 47,366 | 79,078 | 126,444 |
| Percent of totals | 37% | 63% | 100% |

**Note: 56 percent of major injuries (out of action for three weeks or more) were sustained in practice.**

## V. Severity of Injuries

A breakdown of the 630 sport-related injuries reported by the National High School Injury Registry follows:

| Number of Injuries | Percent of total | Severity | Projected total of U.S. Population |
|---|---|---|---|
| 463 | (73.5%) | **Minor injuries** that required seven days or less to heal before play was resumed. | 92,927 |
| 104 | (16.5%) | **Moderate injuries** that precluded basketball participation for eight to 21 days. | 20,873 |
| 63 | (10.0%) | **Major injuries** that precluded basketball participation for more than 21 days. | 12,645 |
| 630 | (100%) | | 126,444 |

**Surgical repairs**: There were 22 basketball-related surgeries (3.5% of total injuries). That projects to 4,416 basketball-related surgeries among female participants in 1986-87 (please see related story). Eighteen of the 22 surgical repairs (82 percent) were knee related and three of the 22 (14 percent) were ankle/foot related. The other surgery was required to heal a broken nose.

National Athletic Trainers Association (1987)
Source: National High School Injury Registry (1987)

## VI. Types of Injuries (see pie chart)

| Percent | Injury classification | Description |
|---|---|---|
| 41.4% | Sprains | ligamentous joint injuries |
| 17.6% | General trauma | contusions and lacerations |
| 15.1% | Strains | musculo-tendinous injuries |
| 9.7% | General illness | flu, infections, etc. attributable to basketball participation |
| 6.5% | Fractures | ----- |
| 6.5% | Musculo-skeletal | inflammation, calcification, etc. |
| 2.4% | Neurotrauma | concussions and nerve disorders |
| 0.6% | Thermotrauma | blisters, dehydration |
| 0.2% | Chemical Illness | ---------- |
| 100% | | |

National Athletic Trainers Association (1987)
Source: National High School Injury Registry (1987)

## VII. Where it Hurts

As expected, injuries to the lower extremities were most common. A breakdown based on NHSIR projections follows:

| Location | Projected total | Percent of total |
|---|---|---|
| Ankle/foot | 37,532 | 29.7% |
| Knee | 21,877 | 17.3% |
| Forearm/wrist/hand | 18,666 | 14.8% |
| Hip/thigh | 15,655 | 12.4% |
| Trunk | 10,838 | 8.6% |
| Other (miscellaneous) | 9,433 | 7.5% |
| Face/scalp | 6,824 | 5.4% |
| Head/neck/spine | 3,211 | 2.5% |
| Shoulder/arm | 2,408 | 1.9% |
| Totals | 126,444 | 100.0% |

National Athletic Trainers Association (1987)
Source: National High School Injury Registry (1987)

## VIII. References


(1) The National Federation of State High School Associations (NFSHSA) reportedly represents 89 percent of U.S. high schools. The NFSHSA lists 16,970 girls basketball programs among its members in its 1986-87 handbook. We arrived at a total of 19,067 girls basketball programs in the U.S. by adding 12.36 percent to 16,970 (which is equal to 19,067 minus 11 percent).

(2) The National Federation of State High School Associations (NFSHSA) reportedly represents 89 percent of U.S. high schools. The NFSHSA lists a total of 392,881 girls basketball participants in their member schools. We arrived at a total of 441,441 girls high school basketball participants in the U.S. by adding 12.36 percent to 392,881 (which is equal to 441,441 minus 11 percent).
equals 932,808).

(3) The NATA received financial support for this study from the Athletic Products Division of Johnson & Johnson Products, Inc. and The Quaker Oats Company, maker of GatoradeR Thirst Quencher.

(4) Fred Mueller, Ph.D., director of the **Annual Survey of Football Injury Research** at the University of North Carolina at Chapel Hill, has been monitoring fatal and catastrophic injuries among females participating in interscholastic and intercollegiate basketball since 1982. Dr. Mueller reports only one catastrophic injury, which was sustained by a girl playing high school basketball during the 1985-86 season, during that five-year period. For information, contact Dr. Mueller at 919/962-2021.

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## NATA FACTS

I. The National Athletic Trainers' Association is a non-profit organization that was founded in 1950.

II. NATA membership has grown five-fold in the past 15 years, to over 10,000 members. The number of NATA-certified athletic trainers increased 16 percent in 1986, to a total of 5,325.

III. The NATA-certified athletic trainer is defined as:

> **"An allied health professional who has successfully completed the college/university undergraduate degree, fulfilled the requirements for certification of the National Athletic Trainers' Association, Inc., and has passed the NATA certification examination administered by the NATA Board of Certification."**

IV. The six domains of athletic training from which specific tasks are measured in the examination are:

1) Prevention of athletic injuries.
2) Recognition and evaluation of athletic injuries.
3) Management, treatment and disposition of athletic injuries.
4) Rehabilitation of athletic injuries.
5) Organization and administration of the athletic training program.
6) Education and counselling of athletes.

When practicing the art and science of athletic training, the certified athletic trainer works under the direction of a licensed physician.

V. The NATA earned full membership in the National Commission for Health Certifying Agencies in 1983. This accreditation provides the NATA with the right to set standards and evaluate and certify those seeking to become athletic trainers in the United States.

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VI. An "NATA-certified athletic trainer" is acknowledged by virtually everyone in the medical community as a highly qualified professional who has earned the title through a combination of college education and practical experience.

In 1986, a total of 723 men and women were certified by the NATA, which represents the fastest rate of growth in that category at anytime in the NATA' 37-year history.

NATA membership breaks down as follows:

| | |
|---|---|
| NATA certified: | 5,325 |
| Associate members: | 864 |
| Student members: | 3,270 |
| Others (retired, allied, advisory, etc.): | 550 |
| TOTAL | 10,009 |

Note: NATA membership has doubled since 1977.

VII. The players associations for the National Football League, Major League Baseball and the National Basketball Association require all athletic trainers coming into their league to be certified by the NATA.

VIII. The NATA executive director's primary role is to manage association business. Otho Davis, head athletic trainer for the NFL's Philadelphia Eagles, has served in this capacity since 1971.

IX. The NATA president presides over the Board of Directors and serves as spokesperson for the organization. Jerry Rhea, head athletic trainer for the NFL's Atlanta Falcons since 1969, was elected president by a majority of certified members and took office in June, 1986. The president's term of office is two years, and is limited to two consecutive terms.

X. The NATA divides the United States into 10 districts. The director for each district joins the executive director and the president to comprise the NATA Board of Directors.

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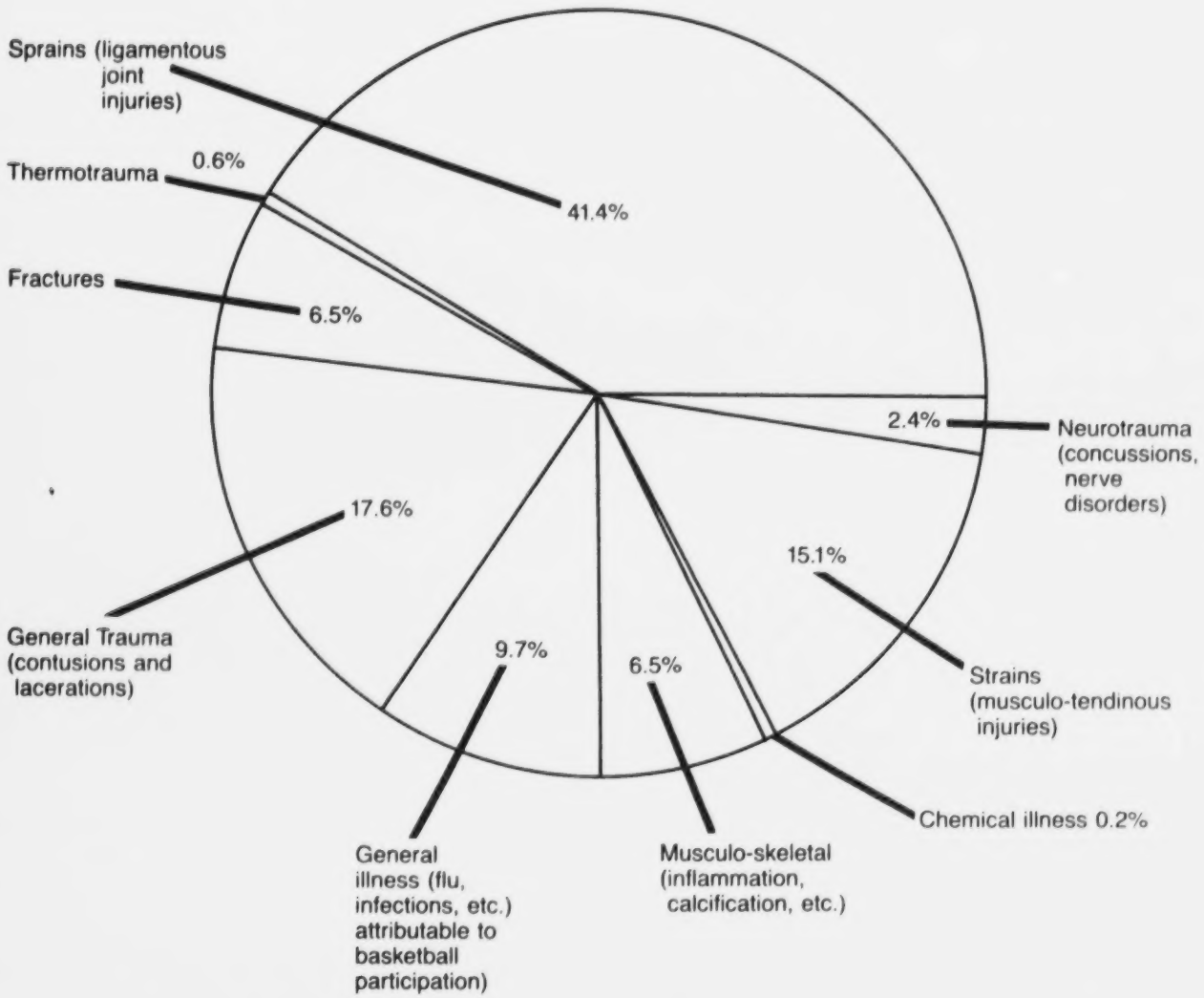
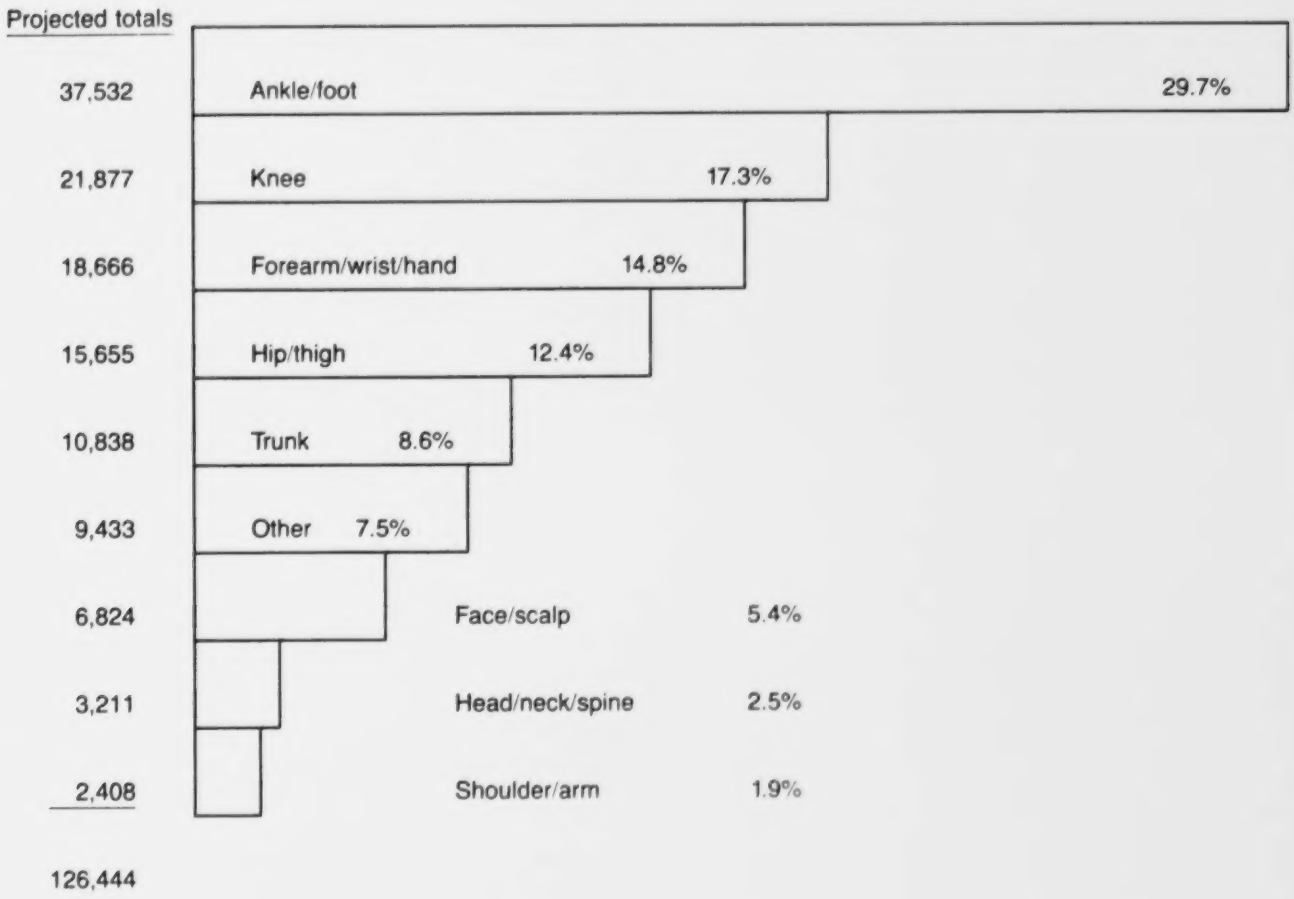
## TYPES OF INJURIES SUSTAINED BY GIRLS PLAYING HIGH SCHOOL BASKETBALL




National Athletic Trainers' Association, Inc.
Source: National High School Injury Registry (1987)

## AREAS OF BODY INJURED




National Athletic Trainers' Association, Inc.
Source: National High School Injury Registry (1987)